1634

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No:	**09/593,914** **Confirmation No: 8319**
Date Filed:	June 14, 2000
Application Title:	Probes, Probe Sets, Methods And Kits Pertaining To The Detection, Identification And/Or Enumeration Of Yeast; Particularly In Wine
Applicants:	Hyldig-Nielsen et al.
Group Art Unit:	1634
Examiner:	C. Myers
Action Date:	October 26, 2004
Action Type:	Second Restriction Requirement – Post Successful Petition
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37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 1st day of December, 2004.

Brian D. Gildea
Reg. No. 39,995

RESPONSE TO RESTRICTION REQUIREMENT

Commissioner for Patents
Dear Sir or Madam:

A petition for an automatic one-month extension of time has been included with the papers accompanying this document so please consider the following response to the Restriction Requirement mailed on October 26, 2004. With the extension, a timely response is now due on or before December 26, 2004.

I. ACTION SUMMARY

The Office communication dated October 26, 2004 states that the pending claims are 1-8, 10, 12, 16, 18, 19, 21-29, 32, 34, 46-49, 61, 62 and 80-87. The Examiner states that claims 1-8, 10, 12, 16, 18, 19, 21-29, 32, 34, 46-49, 61, 62 and 80-87 are all subject to a restriction requirement.

However, at the time of the Appeal, Applicants' records indicate that claims 1-8, 10-12, 16, 18, 19, 21-26, 29, 32, 34, 46-49, 61, 62 and 80-87 stood pending. Furthermore, at the time of the issuance of the original restriction requirement (i.e. after entry of the Preliminary Amendment), Applicants' records indicate that claims 1-34, 46-49, 60-62, 72, 80-85 stood pending. Applicants' records indicate that after entry of the amendment filed on January 17, 2002, the pending claims were 1-12, 16, 18-26, 29, 32-34, 46-49, 60-62, 72, and 80-87. Applicants' records further indicate that after entry of the amendment filed on December 6, 2002, the pending claims were 1-8, 10-12, 16, 18, 19, 21-26, 29, 32, 34, 46-49, 61-62 and 80-87. Since no further amendments were submitted, it is unclear how The Office has determined that claims 1-8, 10, 12, 16, 18, 19, 21-29, 32, 34, 46-49, 61, 62 and 80-87 represent the pending set of claims for the present restriction requirement. It is noted that the Examiner had challenged Applicants' inclusion of claim 34 as a pending claim on Appeal. However, there did not seem to be any disagreement regarding claims 11, 27 or 28. **The Examiner is requested to clarify this apparent inconsistency with the next Office Action.**

For the avoidance of any doubt, Applicants believe that the presently pending claims should be 1-8, 10-12, 16, 18, 19, 21-26, 29, 32, 34, 46-49, 61, 62 and 80-87. These claims are presented as an Appendix to this response. This is not offered as an amendment since Applicants believe this to be the form of the presently pending claims.

II. RESPONSE TO THE RESTRICTION REQUIREMENT

By reference to 37 C.F.R. § 1.193(b)(2) in paragraph 1 of the Office Action, the Examiner takes the position that Applicants must either: 1) file a reply under 37 C.F.R. § 1.111 (or 37 C.F.R. § 1.113 if the action is Final); or else 2) request reinstatement of the appeal. Because the action appears to be non-final, Applicants elect to file this response under 37 C.F.R. § 1.111 and thereby accept that prosecution on the merits is reopened.

Paragraph 7 of the restriction requirement quite firmly requires Applicants to conform to the election made in response to the previous, but now withdrawn, restriction requirement but cites no authority for imposing this demand. Only because Applicants are required to do so, Applicants reaffirm their election of Group I, Sequence ID No. 1 in response to the restriction/election requirement. However, this election is made with traverse. After review of the restriction requirement, Applicants reiterate from and add to their arguments made in response to the original restriction requirement as follows.

Applicants hereby respectfully traverse the present restriction requirement as being clearly contrary to the express holding of both *In re Weber* and *In re Haas*. *In re Weber* expressly holds that:

> It is apparent that § 121 provides the Commissioner with the authority to promulgate rules designed to Restrict an Application to one of several claimed inventions when those inventions are found to be "independent and distinct". It does not, however, provide a basis to an examiner acting under the authority of the Commissioner to Reject a particular Claim on that same basis. *In re Weber*, 580 F.2d 455, 458, 198 U.S.P.Q. 328, __, (CCPA, 1978)
>
> **We hold that a rejection under § 121 violates the basic right of the Applicants to claim his invention as he chooses** (emphasis added). *In re Weber*, 580 F.2d 455, 459, 198 U.S.P.Q. 328, __, (CCPA, 1978)

Accordingly, it is clear from the precedent cited by The Office, the legal issue of whether or not The Office may impose a restriction requirement to a single claim has been decided against The Office. It is well settled that such a requirement violates 35 U.S.C. 112, where the Applicants is statutorily entitled to claim his invention as he deems proper notwithstanding 35 U.S.C. § 121. This is true whether or not the inventions are determined by The Office to be independent and distinct.

Applicants further note that in each Group that the Examiner argues is a separate invention (each distinct Seq. ID No. (e.g. 1-11)) is classified in Class 435, subclass 6 and Class 536, subclass 24.32. Thus, for purposes of a search, there is no

additional burden on The Office since the same class and subclasses must be searched, and no additional Class or subclass must be searched, whether or not a restriction requirement is imposed.

Additionally, Applicants take the position that said claims are generic and use proper Markush format. Although the Examiner's arguments focus on differences among the various sequences, she ignores the fact that all the sequences (i.e. Seq. ID Nos. 1-11) are useful for identifying the yeast known as Dekkera/Brettanomyces. That common feature links them together for purposes of forming a proper Markush group. Accordingly, Applicants takes the position that the present restriction requirement is improper and therefore requests that it be withdrawn.

Because Applicants traverse the restriction requirement, no amendments are offered and no claims have been cancelled. This is also proper since the linking claims issue has not been resolved.

III. FORMAL MATTERS

Given the uncertainty as to what claims The Office believes are presently pending and in what form, Applicants hereby resubmit two Declarations previously submitted, one of which apparently has not been entered by the Examiner. Entry of these Declarations is requested as a matter of right since The Office has reopened prosecution and apparently the present action is Non-Final.

IV. SUMMARY

It is believed that this response addresses all matters set forth in the present communication and the application is in ready condition for allowance. In consideration of the preceding remarks, Applicants hereby respectfully request reconsideration of all pending claims and the timely issuance of a Notice of Allowance by The Office.

V. INTERVIEW

If the Examiner believes a telephonic or personal interview would advance the prosecution of the subject application, the Examiner is invited to contact attorney Gildea during business hours at the telephone or facsimile numbers listed below.

VI. FEES

Except for the fee due for consideration of the petition under 37 C.F.R. §1.136(a), it is believed that no additional fees are believed due The Office for consideration of this paper. If however, The Office determines that any other fee is due, authorization is hereby granted to charge any required fee associated with the filing and consideration of this paper to Deposit Account 02-3240.

VII. CORRESPONDENCE/CUSTOMER NUMBER

Please send all correspondence pertaining to this document to:

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IF NOT ALREADY DONE, PLEASE MATCH THIS CASE WITH CUSTOMER NUMBER

23544

Respectfully submitted
on behalf of Applicants,

Dec 1, 2004

Brian D. Gildea, Esq.; Reg. No. 39,995

APPENDIX

1. An enzyme-linked in-*situ* hybridization probe further characterized in that it comprises a probing nucleobase sequence that specifically hybridizes to a yeast specific target sequence.

2. The probe of claim 1, wherein the target sequence is ribosomal RNA.

3. The probe of claim 1, wherein the probe is a nucleic acid.

4. The probe of claim 1, wherein the probe is a peptide nucleic acid.

5. The probe of claim 1, wherein the probing nucleobase sequence is selected to detect, identify or enumerate organisms of one or more species of yeast.

6. The probe of claim 1, wherein the probing nucleobase sequence is selected to detect, identify or enumerate organisms of one or more genus of a yeast.

7. The probe of claim 1, wherein the probing nucleobase sequence is selected to detect, identify or enumerate all yeast in a sample.

8. The probe of claim 1, wherein the enzyme is selected from the group consisting of: a polymerase, alkaline phosphatase, horseradish peroxidase and soy bean peroxidase.

9. (Cancelled)

10. An enzyme-linked probe for detecting, identifying or quantitating the presence of *Dekkera/Brettanomyces* yeast in a sample of interest, wherein the probe comprises a probing nucleobase sequence wherein at least a portion of the probing nucleobase sequence is at least ninety percent homologous to the nucleobase sequences selected from the group consisting of: AGC-GGG-TCT-

ATT-AGA (Seq. ID No. 1); CCA-GGT-GAG-GGT-CGC (Seq. ID No. 2); CGG-TTG-CCC-GAT-TTC (Seq. ID No. 3); TCG-CCT-TCC-TCC-TCT (Seq. ID No. 4); CGG-TCT-CCA-GCG-ATT (Seq. ID No. 5); CAC-AAG-ATG-TCC-GCG (Seq. ID No. 6); GCG-GGC-ACT-AAT-TGA (Seq. ID No. 7); CAT-CCA-CGA-GGA-ACG (Seq. ID No. 8); GTG-TAA-ACC-AGG-TGC (Seq. ID No. 9); ATG-GCT-CCC-AGA-ACC (Seq. ID No. 10) and GAC-AGA-ATC-GAA-GGG (Seq. ID No. 11) and sequences fully complementary thereto and of the same length.

11. The probe of claim 10, wherein the probing nucleobase sequence is selected to be one hundred percent homologous to a nucleobase sequence identified in the claim.

12. The probe of claim 10, wherein the probe is a peptide nucleic acid.

13-15 (Cancelled)

16. The probe of claim 10, wherein the probe is labeled with soy-bean peroxidase.

17. (Cancelled)

18. The probe of claim 10, wherein the probe is support bound.

19. The probe of claim 18, wherein the probe exists attached to an array of probes.

20. (Cancelled)

21. A set of enzyme-linked probes for detecting, identifying or quantitating *Dekkera/Brettanomyces* yeast in a sample of interest, wherein one or more of the probes comprise a probing nucleobase sequence wherein at least a portion of the probing nucleobase sequence is at least ninety percent homologous to the nucleobase sequences selected from the group consisting of: AGC-GGG-TCT-ATT-AGA (Seq. ID No. 1); CCA-GGT-GAG-GGT-CGC (Seq. ID No. 2); CGG-

TTG-CCC-GAT-TTC (Seq. ID No. 3); TCG-CCT-TCC-TCC-TCT (Seq. ID No. 4); CGG-TCT-CCA-GCG-ATT (Seq. ID No. 5); CAC-AAG-ATG-TCC-GCG (Seq. ID No. 6); GCG-GGC-ACT-AAT-TGA (Seq. ID No. 7); CAT-CCA-CGA-GGA-ACG (Seq. ID No. 8); GTG-TAA-ACC-AGG-TGC (Seq. ID No. 9); ATG-GCT-CCC-AGA-ACC (Seq. ID No. 10) and GAC-AGA-ATC-GAA-GGG (Seq. ID No. 11) and sequences fully complementary thereto and of the same length.

22. The probe set of claim 21, wherein the probing nucleobase sequences of said one or more probes are selected to be one hundred percent homologous to a nucleobase sequence identified in the claim.

23. The probe set of claim 21, wherein the probe set is specific for both the detection of *Dekkera/Brettanomyces* yeast as well as other organisms of interest in the same sample.

24. The probe set of claim 23, wherein the probes of the set are independently detectable.

25. The probe set of claim 21, wherein some of the probes of the set are blocking probes.

26. The probe set of claim 21, wherein all probes of the set are peptide nucleic acids.

27-28 (Cancelled)

29. The probe set of claim 21, wherein the probes are labeled with the enzyme soy-bean peroxidase.

30-31. (Cancelled)

32. The probe set of claim 21, wherein the probes are support bound.

33. (Cancelled)

34. A set of enzyme-linked probes for detecting, identifying or quantitating *Dekkera bruxellensis* yeast in a sample of interest, wherein the two or more probes specific for *Dekkera bruxellensis* yeast comprise a probing nucleobase sequence wherein at least portion of the probing nucleobase sequence is at least ninety percent homologous to the nucleobase sequences selected from the group consisting of: CGG-TTG-CCC-GAT-TTC (Seq. ID No. 3); TCG-CCT-TCC-TCC-TCT (Seq. ID No. 4); CGG-TCT-CCA-GCG-ATT (Seq. ID No. 5) and CAC-AAG-ATG-TCC-GCG (Seq. ID No. 6) and sequences fully complementary thereto and of the same length.

35-45. (Cancelled)

46. A method for detecting, identifying or enumerating yeast in a sample of interest, said method comprising:
    a) contacting one or more species of yeast in the sample with one or more yeast specific enzyme-linked probes, under suitable *in-situ* hybridization conditions, to thereby form one or more probe/target sequence hybrids within the yeast; and
    b) detecting enzyme activity within the yeast to thereby determine the presence, absence or number of yeast sought to be detected in the sample.

47. The method of claim 46 further comprising the step of:
    c) isolating the yeast using a filter as an isolation medium.

48. The method of claim 47, further comprising the step of:
    d) growing the isolated yeast by culture in media.

49. The method of claim 48, wherein the culture is grown directly on the filter, under suitable culture conditions, by placing the filter in contact with media.

50-60. (Cancelled)

61. A method for detecting, identifying or quantitating *Dekkera/Brettanomyces* yeast in a sample; said method comprising:

a) contacting one or more species of yeast in the sample with one or more *Dekkera/Brettanomyces* yeast specific probes, under suitable hybridization conditions, to thereby form a probe/target sequence hybrid; and

b) detecting the presence, absence or amount of probe/target sequence hybrid and correlating the result with the presence, absence or number of *Dekkera/Brettanomyces* yeast in the sample;

wherein one or more of the *Dekkera/Brettanomyces* yeast specific probes comprise a probing nucleobase sequence wherein at least a portion of the probing nucleobase sequence is at least ninety percent homologous to the nucleobase sequences selected from the group consisting of: AGC-GGG-TCT-ATT-AGA (Seq. ID No. 1); CCA-GGT-GAG-GGT-CGC (Seq. ID No. 2); CGG-TTG-CCC-GAT-TTC (Seq. ID No. 3); TCG-CCT-TCC-TCC-TCT (Seq. ID No. 4); CGG-TCT-CCA-GCG-ATT (Seq. ID No. 5); CAC-AAG-ATG-TCC-GCG (Seq. ID No. 6); GCG-GGC-ACT-AAT-TGA (Seq. ID No. 7); CAT-CCA-CGA-GGA-ACG (Seq. ID No. 8); GTG-TAA-ACC-AGG-TGC (Seq. ID No. 9); ATG-GCT-CCC-AGA-ACC (Seq. ID No. 10) and GAC-AGA-ATC-GAA-GGG (Seq. ID No. 11) and sequences fully complementary thereto and of the same length.

62. The method of claim 61, wherein the probing nucleobase sequences of said one or more probes are selected to be one hundred percent homologous to a nucleobase sequence identified in the claim.

63-79. (Cancelled)

80. A kit for performing an *in-situ* assay that detects, identifies or enumerates *Dekkera/Brettanomyces* yeast in a sample, wherein said kit comprises:

a) a filter for isolating yeast from a sample of interest;

b) culture media for growing the isolated yeast;
c) fixation solution for fixing grown yeast;
d) hybridization solution for imposing suitable *in-situ* hybridization conditions;
e) an enzyme labeled probe specific for detecting, identifying or quantitating *Dekkera/Brettanomyces* yeast in the sample; and
f) one or more wash solutions for removing undesirable components after performing one or more steps of the assay.

81. The kit of claim 80, wherein the fixation solution and the hybridization solution are the same solution.

82. The kit of claim 80, wherein the soy bean peroxidase labeled probe is a peptide nucleic acid.

83. A method for quantitating slow growing yeast in a liquid sample in less than 48 hours; said method comprising:
a) filtering a fixed volume of liquid using a filter having a pore size that does not allow the yeast to pass;
b) incubating the filter containing the yeast, in media and under culture conditions, for 45 or fewer hours to thereby grow microcolonies of yeast;
c) fixing the microcolonies of yeast to the filter;
d) contacting the microcolonies of yeast with a yeast specific enzyme-linked probe, under suitable *in-situ* hybridization conditions, to thereby form one or more probe/target sequence hybrids within the yeast;
e) detecting enzyme activity within the yeast to thereby determine the presence, absence or number of yeast sought to be detected in the sample; and
f) determining the quantity of yeast in the sample.

84. The method of claim 83, wherein fixing the microcolonies of yeast to the filter and contacting the microcolonies of yeast with a yeast specific enzyme-linked probe are performed simultaneously using a single solution.

85. The method of claim 83, wherein the number of CFU in the sample is determined.

86. The probe set of claim 10, wherein the enzyme is selected from the group consisting of: a polymerase, alkaline phosphatase, horseradish peroxidase and soy bean peroxidase.

87. The probe set of claim 21, wherein the enzyme is selected from the group consisting of: a polymerase, alkaline phosphatase, horseradish peroxidase and soy bean peroxidase.